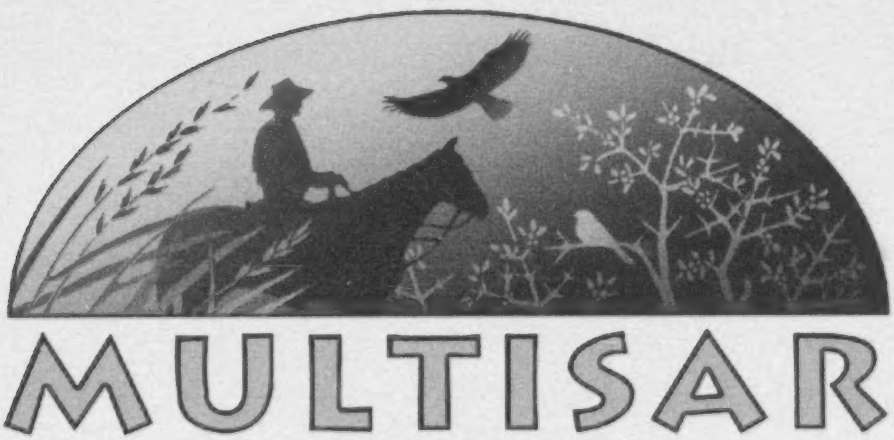
alberta's species at risk program

MULTISAR

A Multi-Species Conservation Strategy for Species at Risk in the Grassland Natural Region of Alberta

2014-2015 Report



Alberta Species at Risk Report No. 153

Alberta Conservation Association

Conserving Alberta's Wild Side

PRAIRIE CONSERVATION FORUM

Alberta Government

MULTISAR: A Multi-Species Conservation Strategy for Species at Risk in the Grassland Natural Region of Alberta

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March 2015

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MULTISAR is very fortunate to be working with a ranching community that has embraced the project and the continued stewardship of rangeland and wildlife habitat. The working relationships established with landholders over the years provide the essential foundation for which the MULTISAR project can be achieved successful.

EXECUTIVE SUMMARY

MULTISAR is a program focused on multi-species conservation at the landscape level that promotes stewardship through voluntary participation of landholders on both Crown and private lands. The program is a collaborative effort among landholders, the Alberta Conservation Association, Alberta Environment and Sustainable Resource Development, and the Prairie Conservation Forum.

The Habitat Conservation Program includes the development of detailed Habitat Conservation Strategies (HCS) in the core project area of southern Alberta, as well as the more compact Species at Risk Conservation Plans (SARC Plans) delivered throughout the Grassland Natural Region. In 2014-2015, the Multi-species Conservation Value (MCV) model and map were updated to allow for improved assessment of areas most appropriate to focus stewardship activities at the landscape level. In addition, a new HCS was developed on two ranches totalling approximately 42,737 acres. Associated habitat enhancement projects were also developed to improve the habitat of key wildlife species. A number of habitat projects were developed on HCS properties. These varied from native prairie restoration, erection of artificial raptor nesting structures, water developments, wildlife-friendly fencing, shrub planting, tree protection, and anthropogenic feature mitigation.

SARC Plans and Beneficial Management Practice (BMP) Plans were developed on three private ranches in 2014. Two ranches received a full SARC Plans totalling approximately 3,170 acres, while a BMP Plan was developed for one other ranch and totalled 640 acres. The BMP Plan was developed for a landowner who wanted to erect a hawk nesting pole on their property in order to attract ferruginous hawks as a method of Richardson's ground squirrel control.

The Education, Outreach and Awareness program was achieved primarily by MULTISAR staff that were able to give presentations and demonstration tours to landowners, wildlife and conservation groups, college students, and the general public. MULTISAR partnered with the Canadian Cattlemen's Association to man a booth during the Calgary Stampede that was viewed by over 104,000 people. Communication material included one issue of MULTISAR's newsletter. In total, MULTISAR made over 172 different contacts with more than 1129 people (and an additional 104,818 people at the Calgary Stampede) including landholders, the general public, academia, industry, media, government and non-government organizations and other sectors.

Under the Research and Monitoring Program, MULTISAR continued implementing its monitoring and evaluation protocol to assess the directionality of habitat improvements and management changes and the effectiveness of its habitat conservation strategies. A subsample of range and riparian sites and wildlife points were revisited on three MULTISAR HCS ranches, five years after their initial assessment, to determine if management recommendations had been implemented and their impact on species at risk habitat.

MULTISAR began compiling the wildlife observation and vegetation assessment data it has been accumulating since its first Habitat Conservation Strategy. It is hoped that inferences can be made between species at risk occurrences and habitat metrics and that Beneficial Management Practices recommendations can be improved to maximize habitat quality.

1.0 INTRODUCTION

Grasslands have evolved over thousands of years, yet over the last century we've managed to lose roughly 80% of our native grasslands in Canada (Bailey et al. 2010). It is therefore no surprise that grasslands are home to some of the most endangered and unique species in Canada. The MULTISAR Program was established in 2002 to help maintain and improve habitat for these unique species by collaborating with landowners and increasing awareness of species at risk.

MULTISAR is a program focused on multi-species conservation at the landscape level that promotes stewardship through voluntary participation of landholders on both Crown and private lands. The program is a collaborative effort among landholders, Alberta Conservation Association, Alberta Environment and Sustainable Resource Development, and the Prairie Conservation Forum. The primary goals of MULTISAR are to implement collaborative strategies to manage multiple species on a defined working landscape and to assist with their implementation. These strategies are compiled into landholder-specific Habitat Conservation Strategies (HCS), leading to the implementation of habitat enhancement activities that benefit both the farm or ranch operation and wildlife. Through these relationships we've implemented 109 habitat enhancement projects on over 310,000 acres of land.

MULTISAR consists of three primary components:

1) Habitat Conservation Strategies which are detailed plans developed with the landholder(s) that can be used as a tool for the management of their land.

2) Education, Outreach, and Awareness Program which involves developing Beneficial Management Practices for various species, development of the annual Grassland Gazette, development of presentations for the public, and completion of Species at Risk Conservation Plans, which are a condensed form of the HCS and completed for landholders outside the priority landscape of the Milk River Watershed and portions of the South Saskatchewan River Watershed.

3) Research, Monitoring, and Evaluation which involves the monitoring of habitat enhancements every one to two years and evaluation of the detailed plans (HCS) every 5 years to determine if they are having the desired effect or are in need of adjustments.

The following chapters outline the accomplishments for MULTISAR under these project components for 2014-2015.

The MULTISAR Program is guided by the 2009-2014 Business Plan. The mission, vision, and goals are:

Vision: Multiple species of wildlife, including species at risk, are effectively conserved at the landscape level, through a process that integrates landuse management with fish and wildlife management principles, and in a manner that may contribute to the species and habitat recovery and to the sustainability of the rural economy.

Mission: To develop and implement the MULTISAR process which directs conservation of multiple species at risk, associated fish and wildlife and their habitats, within the Grasslands Natural Region of Alberta.

Goal: To assist landowners and lessees to manage land to benefit provincial and federal species at risk, while maintaining an economically viable operation.

2.0 EDUCATION, OUTREACH & AWARENESS

2.1 Introduction

The MULTISAR Education, Outreach and Awareness program continued in a reduced capacity for 2014-2015. MULTISAR also continued its participation at the Grazing School for Women and its involvement with the Milk River Watershed Council Canada.

2.2 Landholder Awareness

2.2.1 At Home on the Range, Grassland Gazette and other Information Brochures

A total of 600 copies of MULTISAR's flagship booklet, *At Home on the Range: Living with Alberta's Prairie Species at Risk,* was distributed to landholder cooperators or mailed out to Alberta Environment and Sustainable Resource Development (ESRD) and county and municipal district offices, provincial parks, and Members of the Legislative Assembly (MLAs) of Alberta constituency offices in the Grassland Natural Region. The booklet was also offered at a number of events throughout the year. The ninth issue of MULTISAR's newsletter, the *Grassland Gazette*, was produced in the winter of 2014-15 and sent to all 633 landowner cooperators and other MULTISAR contacts. Moreover, over 166 species at risk brochures and BMP fact sheets were handed out.

2.2.2 Southern Alberta Grazing School for Women

The 11th Annual Southern Alberta Grazing School for Women was held on July 23-24, 2014 in the community of Pincher Creek. MULTISAR is one of the organizing partners of this event. The two day "school" included topics such as range and riparian health, determining stocking rates, the benefits of ranching with wildlife in mind, portable watering unit demo, and featured talks from two local woman producers. This year, approximately 45 women attended the grazing school. MULTISAR had its display set up and handed out various brochures and the At Home on the Range booklet.

2.2.3 Presentations/ Training to Landholder Groups

Presentations/training was given to landowner groups on two occasions. On July 23, MULTISAR led a range health assessment group during the field component of the Southern Alberta Grazing School for Women (see above). On August 28, MULTISAR participated in the 2014 Red Creek Stewardship Group Tour & Riparian Field Day organized by the County of Warner, the Milk River Watershed Council of Canada, and Cows and Fish. Participants visited a site where MULTISAR, in collaboration with the landholder, had installed a remote watering system to alleviate cattle pressure on a creek used by the *Threatened* northern leopard frog. MULTISAR

also talked about the nesting platforms installed on the property for the *Endangered* ferruginous hawk.

2.3 Youth Education

MULTISAR was involved in youth education activities on six occasions, reaching a total of 94 individuals. Table 1 summarizes these activities.

Table 1. Summary of activities by MULTISAR associated with youth education.

Date	Event	Location	Type	Attendance
July 16, 2014	Youth Range Days (Milk River Watershed Council Canada)	Writing-on-Stone Provincial Park	"Amazing Race" – style adventure in the park to find wildlife species	25 youths
August 28, 2014	Jennie Emery School	Coaldale, AB	"Amazing Race" – style adventure with grassland species	44 Students
November 10, 2014*	Lethbridge College	Lethbridge, AB	Presentation: *bat monitoring protocols and equipment use*	8 Students from a Wildlife Survey Techniques Laboratory Class
November 14, 2014*	Lethbridge College	Lethbridge, AB	Presentation: *Habitat elements of MULTISAR*	8 Students of Wildlife Habitat Management Course
November 14, 2014*	Lethbridge College	Lethbridge, AB	Presentation: *Wildlife surveys techniques with MULTISAR*	8 Students of Wildlife Survey Techniques Course
March 31, 2014	Blackie School	Blackie, AB	Presentation: Bats and bat boxes	15 Grade 1 students and 2 teachers

*the following three presentations were given to the same group of students, so each student was only counted once in the total.

2.4 Public Outreach

2.4.1 Presentations, Demonstration Tours and Displays

In 2014-2015, MULTISAR gave live presentations and setup displays on four occasions, and participated in a demonstration tour on three occasions. These allowed MULTISAR to directly reach a minimum of 575 individuals, and received direct and indirect exposure from 104,818 people who visited the Calgary Stampede Cattle Trails. The latter was a partnership with the Canadian Cattlemen's Association for the manning of an Environmental Booth for 10 days during the Stampede, and included an interactive display about grasslands and wildlife and various brochures. An interactive display was also developed later in the year for an improved experience in learning about species at risk and prairie habitats. Table 2 summarizes these public outreach activities.

Table 2. Summary of public outreach activities by MULTISAR.

Date	Event	Location	Type	Attendance
April 10, 2014	Milk River Watershed Council Canada Annual General Meeting	Milk River, AB	MULTISAR display	131 landowners and individuals from various interest groups
May 14, 2014	Great Northern Landscape Conservation Cooperative – Steering Committee Meeting	Waterton, AB	Live Presentation: *MULTISAR- a landscape approach to multi-species conservation in the grassland natural region of Alberta*	46 members of the steering committee from the U.S. and Canada
June 18, 2014	Matador Ranch Workshop; The U.S. Nature Conservancy	Malta, MT	Live Presentation: *Good news stories for habitat enhancements*	40 landowners and representatives from NGOs, Government Agencies and researchers
July 4 – 13, 2014	Calgary Stampede; Canadian Cattlemen's Association	Calgary, AB	MULTISAR display	104,818 visitors from all over the world
September 17, 2014	Prairie Conservation Forum (PCF) - Tour	Onefour, AB	Tour in key species at risk habitat and discussions on Wildlife-friendly fencing as well as the many species at risk of Onefour	18 members of the PCF
September 17, 2014	Prairie Conservation Forum - Tour	Manyberries, AB	Tour and discussion on native grass restoration project	18 members of the PCF
October 4, 2014	Milk River Watershed Council Canada - Tour	Manyberries, AB	Tour and presentation on the species at risk of the Pinhorn Grazing Reserve	30 people largely from the Milk River Watershed
January 27, 2014	Winter Speaker's Series 2015; Alberta ESRD, Pincher Creek Library	Pincher Creek, AB	Live Presentation (Video Conferencing): *Ranchers, Cattle and Prairie Species At Risk: an essential ecosystem to support*	100 people from 9 libraries across Alberta
January 29, 2015	Native Prairie Restoration and Reclamation	Saskatoon, SK	Live Presentation: *Silver Sage Conservation*	60 people from various sectors including

Date	Event	Location	Type	Attendance
	Workshop; Saskatchewan Prairie Conservation Action Plan		*Site: Return of the Prairies*	livestock, mining, recreation, Academia, Government and NGOs
February 3, 2015	Wildlife in the Wind Speaker Series; Alberta Chapter of The Wildlife Society, Alberta Society of Professional Biologists	Lethbridge, AB	Live Presentation: *Bats, Bats and Bats – More Than Flying Furn:*	35 people from the general public
March 25, 2015	Investigation of high nitrate concentrations in groundwater in the McBride and Ardenville aquifers	Fort Macleod, AB	MULTISAR display	45 landowners and individuals from the general public
March 27, 2015	Annual Spring Open House by MD of Pincher Creek Agriculture and Environmental Services	Pincher Creek, AB	MULTISAR display	70 landowners and individuals from the general public

2.4.2 Web Site and Social Media

The MULTISAR website (www.multisar.ca) continues to be the key portal where up-to-date information about the project, beneficial management practices (BMPs) for species at risk, as well as related documents, news events, and producer stories can be accessed. This year, MULTISAR has updated the content of its web site and improved the look to reflect its brand. It continues to get direct feeds from both the MULTISAR Twitter and Facebook accounts, which provide current news.

2.4.3 Contacts, Extension and Outreach

Through the course of any fiscal year MULTISAR staff interacts on a daily basis with landholders and other individuals representative of a broad spectrum of sectors. Between April 2014 and March 2015, a total of 172 contacts were made with 1,129+104,818 people through direct visits, phone calls, e-mails, tours, presentations, or attendance at a booth, cumulating to 443 hours (Table 3). Of those, 104,818 people visited the Calgary Stampede Cattle Trails and either stopped to talk with staff or walked by and saw the MULTISAR display. A new interactive display was developed and will be used in the future at the Stampede and other venues. Contacts with rural landholders to discuss the MULTISAR project, species at risk or various aspects of rangeland management made up 16% of all individuals reached, but an undetermined number of them not included in this percentage were present at the Stampede and at other presentations with contacts categorized as "other" or "NGO".

Table 3. MULTISAR contacts for 2014-2015

Contact Type	# Contacts	# People
Academic	5	26
Company	8	8
Consultant	4	6
Contractor	3	3
Government	32	149
Individual (non-landholder)	3	2+ 104,818
Industry	1	45
Landholder	80	111
Landowner Group	8	74
Media	2	2
NGO	17	411
School	3	112
Other	6	180
Total:	**172**	**1,129 + 104,818**

2.4.4 Media and other Publications

In addition to the MULTISAR newsletter the *Grassland Gazette* that was produced and sent to 633 contacts, MULTISAR received attention in four other newsletters and papers (Table 4).

Table 4. Media exposure MULTISAR received in 2014-2015.

Media Name	Topic of Story	Date
The Meander (The Milk River Watershed Council Canada newsletter)	*Greater Sage Grouse Emergency Protection Order*	Summer 2014
ESRD Insight (ESRD newsletter)	*Staff stories – from coffee at the kitchen table to MULTISAR success*	November 21, 2014
Pincher Creek Echo	*Biologist video conferences from Pincher Creek Library on ranching, prairies and species at risk*	February 10, 2015
Prairie Post (West Edition)	*Prairie Species at risk the topic of conversation*	February 13, 2015

3.0 HABITAT CONSERVATION STRATEGIES

3.1 Introduction

Conservation efforts to maintain and enhance wildlife habitat and rangelands for both species at risk and cattle production are the primary objectives of MULTISAR and the Habitat Conservation Strategy (HCS). The majority of the province's remaining native prairie is found in the Grassland Natural Region, where 75% of Alberta's species at risk can be found. Most of these native habitats still exist thanks to livestock production. Efforts to maintain and enhance wildlife habitat for species at risk and rangeland sustainability can be achieved through a voluntary and collaborative approach with landowners and lease holders. The HCS team works together to balance the needs for healthy rangelands and quality fish and wildlife habitats through grazing recommendations and habitat improvement projects. The strategy is a result of detailed range, wildlife and riparian inventories and assessments, from which management goals and objectives can be made.

3.2 HCS Process

The foundation of a HCS is its team members. Landholders, as well as both government and non-government agencies, make up the team and include members from Alberta Environment and Sustainable Resource Development, Alberta Conservation Association, Prairie Conservation Forum and any other organizations that are stakeholders in the property.

Management objectives and strategies for the implementation of conservation efforts are developed by the entire MULTISAR HCS team and address wildlife, habitat, range, riparian and land management objectives identified for a particular land base. Management and habitat enhancement recommendations are based largely on the recovery actions for species identified as a priority on the land and from MULTISAR's Beneficial Management Practices document (RCS Ltd. 2004).

For a complete and detailed description of the entire HCS process, refer to MULTISAR's 2010-2011 progress report (Rumbolt et al. 2011). Information regarding the detailed survey methodologies used in HCSs can be found in MULTISAR's 2011-2012 progress report (MULTISAR 2012).

3.3 HCS Achievements for the Fiscal Year 2014-2015

In order to enable prioritization of management activities in the GNR, a new Multi-species Conservation Value (MCV) model was created for 14 priority wildlife species using existing Resource Selection Function and Habitat Suitability Index models developed by MULTISAR in the last few years. The MCV model was developed at the extent of the GVI data available as of March 1, 2015. The resulting MCV map was produced to identify areas with high multi-species value for conservation and management, and may be used to guide the development of new Habitat Conservation Strategies.

To date, MULTISAR has completed 28 HCSs on 320,283 acres of land within the Milk River, Pakowki and St. Mary's Basins (Table 5). In 2014, MULTISAR completed an HCS for two new properties in the Milk River Basin, totaling 42,737 acres. Work on these properties included detailed wildlife, range and riparian inventories.

Table 5. Habitat conservation strategy participant summary.

Year*	# Landholder Participants	Acres Surveyed
2004	2	60,528
2005	1	160
2006	2^	79,091
2007	2	48,667
2008	2	7,183
2009	3	38,515
2010	5	4,677
2011	5	17,908
2012	3	12,983
2013	1	7,834
2014	2	42,737
Total	28	320,283

*HCS were counted in the year in which field work was initiated, however, some surveys continued for more than one year.

^In 2006, MULTISAR absorbed the Western Blue flag Program and its 8 participating landholders. These properties did not have a HCS completed and therefore they are not included in this total.

So far, eight HCSs that were implemented for at least five years have been reassessed (Table 6). These reassessments entailed a resurvey of a subsample of the original range and wildlife inventories, as well as a complete reassessment of riparian health. More details on these reassessments can be found in Section 5.0.

Table 6. Habitat conservation strategy reassessment summary.

Year of HCS Reassessment	MULTISAR Participant	Size of Property (ac)
2011	MP_1	60,228
2012	MP_4	11,076
2013	MP_7	41,836
2013	MP_8	3,478
2013	MP_9	4,143
2014	MP_2	160
2014	MP_3	4,092
2014	MP_6	39,386

3.3.1 Wildlife

Approximately 7,524 wildlife observations have been submitted to the Fish and Wildlife Management Information System (FWMIS) since 2004. In 2014, 44 different species at risk were recorded on HCS properties. Table 7 summarizes the species at risk observed on all HCS properties assessed (or reassessed) during the 2014 field season. One notable observation in 2014 was that of the eastern yellow-bellied racer. This species has been documented on occasions in Alberta; however the efforts of MULTISAR as well as ESRD staff and several volunteers resulted in the observation of nine live and one road killed snakes, in addition to a hibernaculum.

The hibernaculum was the first ever to be documented for this species in Alberta (Joel Nicholson Pers. Comm.). The racer specimen was collected and provided to ESRD with the hopes that it can be mounted and used for educational purposes.

Table 7. Species at risk recorded during the 2014 Habitat Conservation Strategy field season.

Species	General Status[1]	Legislative Status[2]	# of Observations	Feature	Significance
Burrowing Owl	At Risk	Endangered	16	4 nest burrows	
Ferruginous Hawk	At Risk	Endangered	10	2 nests	
Eastern short-horned lizard	At Risk	Endangered	34		Expansion of local ranges for several populations.
Eastern yellow-bellied racer	N/A	Threatened	10	1 hibernaculum	First hibernaculum confirmed in Alberta
Swift Fox	At Risk	Threatened	12	2 active dens	
Prairie Falcon	Sensitive	Special Concern	3		
Northern Leopard Frog	At Risk	Threatened	200+		Breeding area present
American White Pelican	Sensitive	N/A	2		
American Bittern	Sensitive	N/A	1		
Barn Swallow	Sensitive	Threatened	19		
Black tern	Sensitive	N/A	15		
Bobolink	Sensitive	Threatened	5		
Chestnut-collared Longspur	Sensitive	Threatened	2113		
Common Nighthawk	Sensitive	Threatened	26		

[1] Alberta General Status (ASRD 2010a)
[2] Legislative Status for Canada's Species at Risk Act (EC 2012) or Alberta Wildlife Act (GOA 2012)
N/A = Not Assessed

Species	General Status[1]	Legislative Status[2]	# of Observations	Feature	Significance
Sprague's Pipit	Sensitive	Threatened	465		
American Badger	Sensitive	Special Concern	1		
Baird's Sparrow	Sensitive	N/A	477		
Brewer's Sparrow	Sensitive	N/A	36		
Bullsnake	Sensitive	N/A	5	Hibernaculum	2 new hibernacula.
Common Yellowthroat	Sensitive	N/A	12		
Golden Eagle	Sensitive	Not at Risk	8		
Grasshopper Sparrow	Sensitive	N/A	284		
Great-blue Heron	Sensitive	N/A	1		
Green-winged Teal	Sensitive	N/A	8		
Horned Grebe	Sensitive	N/A	2		
Least Flycatcher	Sensitive	N/A	3		
Lesser Scaup	Sensitive	N/A	64		
Loggerhead Shrike	Sensitive	Threatened	12		
Long-billed Curlew	Sensitive	Special Concern	77		
Long-tailed weasel	May be At Risk	N/A	1		
McCown's Longspur	Sensitive	Special Concern	356		
Northern Harrier	Sensitive	Not at Risk	24		
Northern Pintail	Sensitive	N/A	64		
Pied-billed grebe	Sensitive	N/A	3		
Plains Garter Snake	Sensitive	N/A	42	Hibernaculum	Three new hibernacula
Prairie Rattlesnake	May be At Risk	N/A	26	Hibernaculum	Five new hibernacula
Pronghorn	Sensitive	N/A	116		

Species	General Status[1]	Legislative Status[2]	# of Observations	Feature	Significance
Sharp-tailed Grouse	Sensitive	N/A	263	9 leks	6 historic and 3 new leks
Short-eared Owl	May be At Risk	Special Concern	17		
Sora	Sensitive	N/A	8		
Swainson's Hawk	Sensitive	N/A	12	2 nests	
Upland Sandpiper	Sensitive	N/A	7		
Wandering Garter Snake	Sensitive	N/A	8		One potential new hibernaculum
Western wood-pewee	Sensitive	N/A	2		

3.3.2 Range

The HCS properties assessed (and reassessed) in 2014 displayed a wide range of diversity in the plant communities and range health found. MULTISAR conducted at total of 235 detailed range transects (vegetation inventories), 514 range health assessments and 61 tame pasture assessments during the 2014 field season (Table 8). During these inventories, eleven species of rare plants were observed on the properties.

Table 8. Summary of range work completed by MULTISAR during the 2014 Habitat Conservation Strategy field season.

Property	Acres	Sites Assessed	# Plant Communities	Rare Plants
MP_2	160 (153 reassessed)	4 detailed transects, 3 range health assessments and 1 tame pasture assessments	3	None
MP_3	4,092 (2348 reassessed)	23 range health assessments and 3 tame pasture assessments	17	None
MP_6	39,386 (20,281 reassessed)	113 range health assessments and 16 tame pasture assessments	43	Slender, intermediate, and small-flowered hawk's-beard Payson cryptanthe Tufted hymenopappus
MP_27	537	4 detailed transects and 10 range health assessments	19	None
MP_28	42,200	227 detailed transects, 365 range health assessments and 41 tame pasture assessments	40 coded 100 conditional	Annual Skeletonweed Small-flowered hawk's-beard Small-flowered sand verbena Smooth narrowed-leaved goosefoot Dwarf Woollyheads Moquin's sea-blite Yucca (Soapweed)

3.3.3 Riparian

The Alberta Riparian Habitat Management Society – Cows and Fish was contracted to complete riparian health assessments at thirty-one sites in 2014. Ten transects were assessed on the Milk River, four on Lost River, and three on MacDonald's Creek, while the rest were located on various tributaries and wetlands found throughout the properties. All twenty sites that were completed on reassessment properties were sites that were assessed during the original HCS, which gives MULTISAR excellent comparison data over the years.

3.3.4 Wildlife and Range Health Inferences

Compiling the data gathered from the wildlife, range and riparian health assessments on each property, allows MULTISAR to make inferences regarding the range and riparian health of a site and the corresponding wildlife and habitat features observed. Using this information, management plans were created for each property, incorporating beneficial management practises for each management unit that promote sustainable ranching and habitat for species at risk.

3.3.5 Implementation of HCS Habitat Enhancements

In 2014, 27 habitat enhancements were implemented as a result of recommendations identified in both past and present HCSs. Habitat enhancement projects completed in 2014 include the planting of 3,800 silver sagebrush, golden bean, and wild vetch plugs at three separate sites in greater sage-grouse habitat. Also in greater sage-grouse habitat, approximately 10 acres of marginal cropland was reseeded back to native grassland. One nest platform for ferruginous hawks was erected with the goal of attracting ferruginous hawks to aid in Richardson's ground squirrel control and to provide additional nesting sites for this Endangered species. Other completed habitat enhancements include the installation of 39.2 km of wildlife friendly fence (smooth bottom wire to facilitate pronghorn movement) by four landowners and the installation of fence reflectors on approximately 800 m of new fence near a sharp-tailed grouse lek. Several enhancements were completed with the goal of enhancing riparian habitat, and include 2 portable watering units, development of 5 upland watering sites, one portable wind break, and tree protection for cottonwoods. In addition, weed control was also completed at 4 different sites. Since 2005, MULTISAR has completed 113 habitat enhancement projects with cooperating landholders, the details of which are summarized in Figure 1.

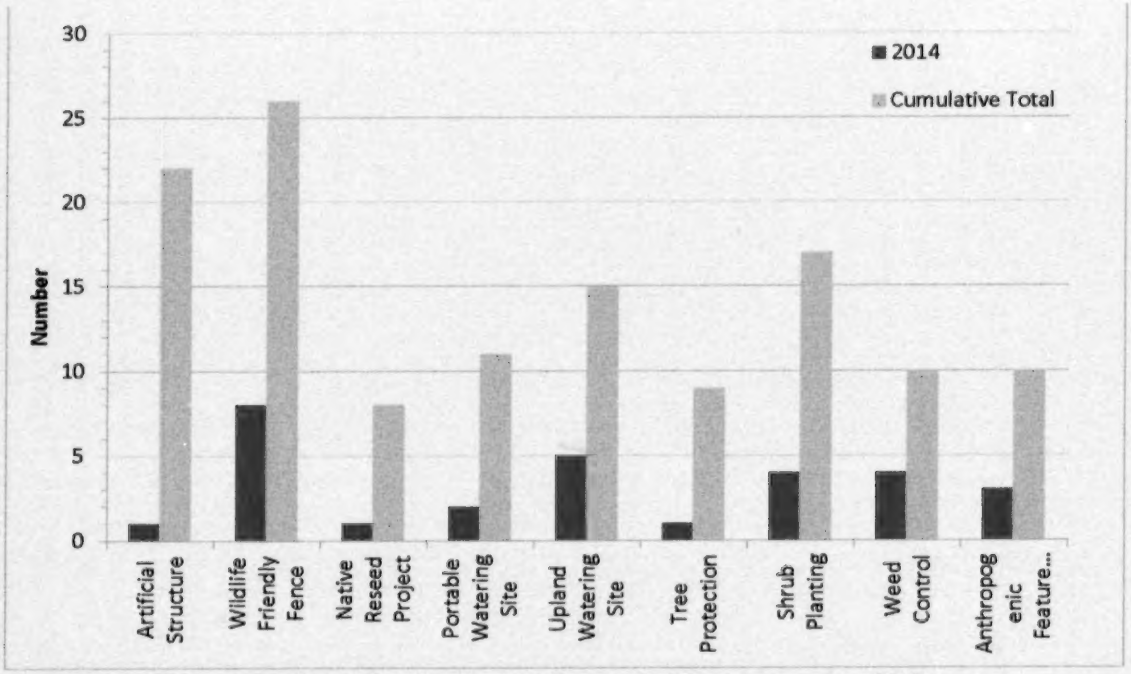

Figure 1. Number of habitat enhancement projects completed, by category, since 2005.

Habitat enhancement projects continue to be monitored through MULTISAR's monitoring and evaluation protocol to ensure that the enhancements are having the desired positive impact on specific habitats and wildlife. Section 5.0 discusses in more detail, MULTISAR's monitoring and evaluation process and the positive results that are being seen on the landscape as a result of these enhancement projects.

3.4 Conclusion

Over the last 13 years, MULTISAR has become increasingly more recognized and its HCS work has grown tremendously throughout the St Mary's River, Pakowki Lake and Milk River basins. MULTISAR has developed plans for approximately 320,283 acres of land, of which a large portion is interconnected, allowing for landscape planning versus single property initiatives. MULTISAR will continue its efforts to increase the land base under HCS within priority areas and seek to "connect" additional properties adjacent to voluntary HCS participants. MULTISAR has and will continue to provide open communication, information and awareness, team based wildlife habitat planning, and will continue to build and maintain long-term relationships with landholders, government, non-government organizations, and industry.

4.0 SPECIES AT RISK CONSERVATION PLANS

4.1 Introduction

In 2014-2015, MULTISAR continued the use of its extension program to influence rangeland management and benefit prairie wildlife habitats. Species at Risk Conservation (SARC) Plans were introduced in 2007 as an extension of the MULTISAR Habitat Conservation Strategy (HCS). They are a more condensed version of the HCS applied at the ranch level and delivered throughout the entire Grassland Natural Region (GNR) and the adjacent Rocky Mountain and Parkland Natural Regions.

Following a large demand for species specific or habitat specific management tools, MULTISAR introduced its Beneficial Management Practices (BMP) assessments in 2012-2013. Over the years, MULTISAR staff have been approached by landowners wanting to complete specific habitat improvements on their properties (e.g., installation of hawk nesting poles, water developments, etc.), but were not interested in having their entire property assessed through a traditional SARC Plan. They were focused on one aspect of their operation or one species or group of species and wanted guidance on that specific topic. For this reason, BMP specific assessments were developed that focused solely on the proposed habitat improvements or on the habitat requirement of species of interest.

4.2 SARC Plan/BMP Assessment Process

The MULTISAR SARC Plan process is divided into six steps: 1) identification of priority lands, 2) landholder contact, 3) preliminary background research, 4) on-site habitat assessment, 5) SARC Plan development and delivery, and 6) follow up. For a complete account of the SARC Plan process, please refer to the 2010-2011 MULTISAR Progress Report (Rumbolt *et al.* 2011).

Of the six steps noted above, the BMP assessment follows the same process as the SARC Plan, except for step one. These assessments are normally completed in response to a landowner's request as opposed to the active solicitation involved with the SARC Plan program.

4.3 Achievements

Since the inception of the SARC Plan program in 2007, 80 assessments (two in 2014-2015) have been completed throughout the GNR covering a total area of 153,114 acres (3,170 acres in 2014-2015). This was the third year that BMP specific assessments were completed. One BMP assessment (on 640 acres) was completed this year for a landowner who wanted to install an artificial hawk nesting platform, with interest in controlling Richardson's ground squirrels on their property in an ecological manner. Since beginning these assessments in 2012, MULTISAR has completed 14 assessments for a total of 14,185 acres.

For the two SARC Plans (3,170 acres) completed by MULTISAR this year, BMPs were recommended for the following species and groups of species:

1. Raptors – 1 (3,170 acres)*
2. Amphibians – 1 (3,170 acres)

* *BMP recommendations for species/groups of species are not mutually exclusive.*

Several habitat improvements have been developed as demonstration sites on SARC Plan co-operator properties throughout the years and are periodically monitored to ensure that they achieve their objectives. Habitat improvements include a nesting platform erected for ferruginous hawks, several wetland and riparian fencing projects, shelterbelt fencing, and portable watering unit development.

4.4 Discussion

Since their inception in 2007, SARC Plans initially were popular with landowners. This was due to the fact that the first 'wave' of SARC Plans were completed for people who were somewhat aware of the MULTISAR program and/or familiar with the MULTISAR staff. These established relationships led to many willing participants in the SARC Plan program.

Due to reduced funding, MULTISAR lost its Education and Outreach Coordinator in 2010. This position was key to promoting SARC Plans and aided in ultimately engaging participants in the program.

The following few years saw the number of SARC Plans slowly begin to taper off despite various attempts at garnering interest in the program (presentations, mailouts, etc.). Figure 2 summarises the number of participating SARC Plan landowners/properties per year over the eight years of the program.

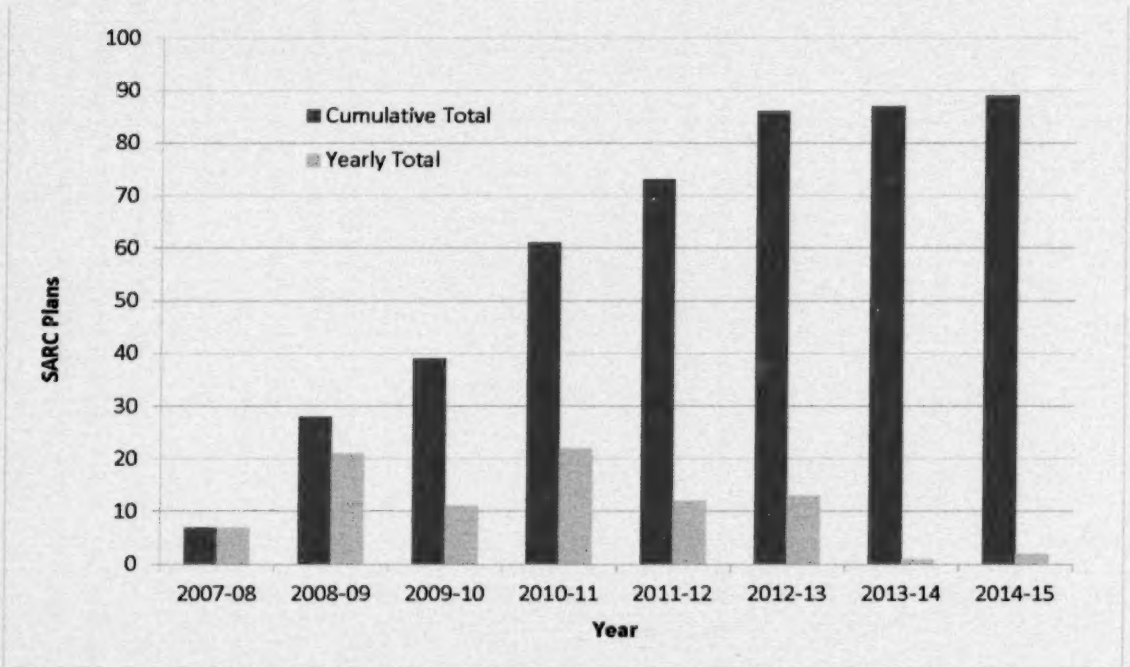

Figure 2. Number of SARC Plans completed since program inception.

In 2013, an evaluation of the SARC Plan program was completed. The results of this evaluation indicated that landowners who actively sought out MULTISAR and requested a SARC Plan were interested in the information MULTISAR provided and in making management changes to benefit wildlife habitat. Conversely, landowners who were first approached by MULTISAR were

often not as interested in the information provided and were not as likely to engage in implementing management changes that will benefit species at risk. Therefore, it was decided that SARC Plans would target those landowners who approached (or were referred to) MULTISAR and requested a plan. This scenario gives MULTISAR the best "bang for their buck", as time and resources can focus on properties and landowners where the information passed on to them will be most useful.

This past year, all three plans that were completed were for landowners who were referred to MULTISAR and were subsequently contacted. The initial contact or knowledge of the program is typically from interactions of MULTISAR staff with landowners or other conservation organizations during various conferences, training days, tradeshows, etc.

4.4.4 Conclusion

Species at Risk Conservation Plans are ever evolving and are still seen as an important way for MULTISAR to reach out to a large number of landowners throughout the Grassland Natural Region and increase awareness of species at risk beneficial management practices. Without an Education and Outreach Coordinator, MULTISAR will continue to provide SARC and BMP plans on a responsive basis and promote them at various landowner events.

5.0 HABITAT CONSERVATION STRATEGY EVALUATION & MONITORING PROGRAM

5.1 Introduction

MULTISAR's current evaluation and monitoring program is in its fifth year. Monitoring and evaluating occurs on two levels: Re-assessment of Habitat Conservation Strategies (HCS) and monitoring of completed enhancements on HCS properties. The following sections will provide a brief summary of MULTISAR's Evaluation and Monitoring Program outcomes for the year 2014-2015.

5.2 Evaluation of the HCS component of the MULTISAR Project

An assessment of each HCS completed for the MULTISAR project may occur five years after its implementation. The main focus of this evaluation is to measure how effective the HCS plan is in influencing habitat management decisions, improving/maintaining habitat for species at risk, and improving the landholders' perceptions of species at risk and their associated habitat. In 2014, MULTISAR evaluated three HCSs; hereafter referred to as MP_2, MP_3, and MP_6. Please refer to MULTISAR (2014), sections 5.2 – 5.2.2.2 for methodologies including survey requirements and statistical procedures for evaluating the HCS process.

5.2.1 HCS Evaluation Results for 2014

5.2.1.1 *Range*

MP_6 was first evaluated in 2007/2008, and across all native plots revisited the overall health changed from $\bar{x}$ = 74.3% ±15 (n=111) to 77.5% ±15. Tame pastures have on average changed in health from $\bar{x}$ = 74.1% ±15 (n=17) to 80.7% ±12. Native and tame sites desired to "maintain" range health had similar health scores from baseline assessments (were within ±10%) while native sites desired to "increase" (>10%) in range health achieved this goal (Table 9).

Across all native sites revisited for MP_3, overall health changed from 70.6% ±17 (n=14) in 2006 to 71.9% ±12 in 2014 and tame pastures changed in health from $\bar{x}$ = 75.1% ±18 (n= 12) in 2006 to 66.8% ±12. Native areas desired to "maintain" range health on average achieved this while areas where range health was recommended to increase also attained this goal. The tame pastures on this property recommended to "maintain" its range health did not achieve this goal; however, areas needing to improve health did (Table 9).

MP_2 is a very small property and only general summaries of findings can be discussed. Four areas were reassessed in 2014 from initial surveys in 2005. An abandoned cultivation site, which has now been reseeded with native species, has increased in range health. A native grassland area has decreased in range health due to weed issues and a tame pasture area has maintained its health score.

Table 9. Comparison of range health values between baseline surveys and reassessment surveys for cooperating MULTISAR participants.

Desired Outcome	MP_6			MP_3		
	Baseline year RH average	Evaluation year RH average	Desired effect/trend occurring	Baseline year RH average	Evaluation year RH average	Desired effect/trend occurring
Native "Maintain" ±10%	80.3%	81.8%	**Yes** n= 79 t= 1.05 p= 0.30	79%	75%	**Yes** n= 10 t= 1.18 p= 0.27
Native "Increase" >+10%	54%	64%	**Yes** n= 28 t= 3.75 p< 0.001	49.5%	64%	n= 4 Increasing, but sample size small
Native "Decrease" >-10%	96.8%	88.5%	n= 4 Decreasing, but sample size small	N/A	N/A	N/A
Tame "Maintain" ±10%	78.6%	80%	**Yes** n= 12 t= 0.31 p= 0.76	79.4%	66.8%	**No** n= 10 t= 2.32 p= 0.04
Tame "Increase" >+10%	49.7%	77.3%	n= 3 Increasing, but sample size small	53.5%	59%	n= 2 Increasing, but sample size small
Tame "Decrease" >-10%	83.5%	90%	n= 2 Maintaining, but sample size small	N/A	N/A	N/A

N/A = was not a recommendation for this property

5.2.1.2 *Riparian*

In 2014, MP_6 had riparian health inventories reassessed on thirteen sites. Two sites were assessed using the detailed Lotic Inventory; two using the detailed Lentic Inventory, and nine using the Large River Health Assessment protocol. Thirty eight percent of the sites have increased in health and thirty eight percent have declined, with the hardest hit being the lentic sites. Twenty four percent of the sites have remained relatively unchanged (Table 10).

Riparian health inventories were reassessed on MP_3 in 2014 at seven sites. Six sites were assessed using the detailed Lotic Inventory and one was assessed using the detailed Lentic Inventory. Overall, riparian health has improved on this property (Table 10).

Table 10. Riparian Health Reassessments for MP_6 and MP_3

Property	Inventory*	Baseline Year	Reassessment Year	Trend
MP_6	Lotic 1	83%	87%	No Change/Slight Improvement
	Lotic 2	72%	61%	Declining
	Lotic 3	51%	68%	Improving
	Lotic 4	65%	71%	Improving
	Lotic 5	58%	71%	Improving
	Lotic 6	62%	73%	Improving
	Lotic 7	45%	42%	No Change/Slight Decline
	Lotic 8	68%	73%	Improving
	Lotic 9	59%	59%	No Change
	Lotic 10	60%	56%	No Change/Slight Decline
	Lotic 11	63%	54%	Declining
	Lentic 1	65%	38%	Declining
	Lentic 2	75%	65%	Declining
MP_3	Lotic 1	61%	74%	Improving
	Lotic 2	67%	80%	Improving
	Lotic 3	67%	67%	No Change
	Lotic 4	69%	81%	Improving
	Lotic 5	78%	74%	No Change/Slight Decline
	Lotic 6	61%	69%	Improving
	Lentic 1	26%	75%	Improving

* Name changed for landowner privacy

5.2.1.3 *Wildlife*

Several wildlife surveys from the baseline years on MP_6, MP_3, and MP_2 were repeated in 2014. For this report, focus will be on multi-species point count surveys with comparisons on species richness and species diversity between baseline year to assessment year.

One hundred and twenty one 200 m multi-species survey point counts were resurveyed on MP_6. Species richness and diversity were only evaluated based on avian species due to the more arbitrary encounters with other wildlife such as mammals. Species richness has increased on this property from 4.1 ±2 (n=121) to 5 ±2 (t= 3.75, p= 0.0003) while species diversity slightly increased from 1.1 ±0.4 to 1.3 ±0.6 (t= 2.35, p= 0.02) per point count location.

Based on all wildlife encountered in the baseline year and the reassessment year for MP_6, species seen the most frequently included chestnut-collared longspur (*Calcarius ornatus)*, horned lark (*Eremophila alpestris*), and Richardson's ground squirrel (*Spermophilus richardsonii*); with ground squirrels and longspurs increasing in numbers considerably (Table 11).

Twenty one 200 m multi-species survey point counts were resurveyed on MP_3. Species richness has decreased from 4.6 ±1.7 (n= 21) to 3.8 ±1.6 (t= -1.7, p= 0.1), and species diversity has slightly decreased from 1.3 ±0.4 to 1.1 ±0.5 (t= -1.7, p= 0.1) when comparing bird species recorded per point count. Despite the decrease in these numbers, all desired species were present on the property and suitable habitat was available.

We completed nine point counts on MP_2. In the baseline year, 6 of the 9 point counts had survey areas that partially fell outside of the property boundaries; however, in 2014, surveys were confined to the fence borders. Due to a low sample size and survey methodology change, statistical analysis was not completed. Avian species richness has increased from 9 to 14 on the property since 2005. Our general observations from the surveys included a decrease in horned larks, and overall stability in other avian numbers (Table 11).

Table 11. Most abundant species recorded for baseline and reassessment years.

Property	Baseline year		Reassessment year	
	Species	Count	Species	Count
MP_6	Chestnut-collared longspur	331	Richardson's ground squirrel	707
	Horned lark	252	Chestnut-collared longspur	628
	Richardson's ground squirrel	248	Horned lark	274
	Western meadowlark	106	Mccown's longspur	149
	Mccown's longspur	99	Western meadowlark	121
	Sprague's pipit	69	Vesper sparrow	103
	Vesper sparrow	36	Savannah sparrow	94
	Savannah sparrow	31	Sprague's pipit	76
	Clay-colored sparrow	26	Baird's sparrow	48
	Pronghorn	25	Brewer's blackbird	39
MP_3	Western meadowlark	27	Richardson's ground squirrel	62

Property	Baseline year		Reassessment year	
	Savannah sparrow	22	Clay-colored sparrow	26
	Vesper sparrow	22	Western meadowlark	24
	Sprague's pipit	19	Sharp-tailed grouse	21
	Brewer's blackbird	12	Vesper sparrow	21
	Sharp-tailed grouse	11	Savannah sparrow	18
	Mule deer	9	Boreal chorus frog	10
	Clay-colored sparrow	8	Common yellowthroat	8
	Horned lark	6	Brewer's blackbird	7
	Long-billed curlew	6	Canada goose	6
MP_2	Horned lark	39	Western meadowlark	12
	Western meadowlark	10	Savannah sparrow	7
	Pronghorn	6	Vesper sparrow	7
	Savannah sparrow	7	Richardson's ground squirrel	5
	Sprague's pipit	4	Barn swallow	3
	Baird's sparrow	3	Cliff swallow	3
	Vesper sparrow	3	Grasshopper sparrow	3
	Chestnut-collared longspur	2	Sprague's pipit	2
	Barn swallow	2	Horned lark	2
	Long-billed curlew	1	Long-billed curlew	2

5.2.2 Concluding Remarks

For the three HCS properties reassessed, it was determined that range health objectives have generally been met for MP_6 and MP_3, with MP_2 having mixed results. In some instances desired wildlife species such as chestnut-collared longspurs and McCown's longspur were on the rise (MP_6) and other species contrarily declined, including horned larks on MP_2 and MP_3. Little is known about the factors surrounding and causing any decline and further years of monitoring is recommended to determine if they are related to local habitat quality.

In the forthcoming years, based on knowledge acquired through the HCS re-evaluation process, modifications may be made to recommendations and desired outcomes for each property. In addition, adjustments may also be made to allow for improved assessments and monitoring for each HCS. In 2015, it is expected that MP_5, MP_10, and MP_11 will be the properties that will be reassessed.

5.3 Monitoring Habitat Enhancements on HCS Participants

Monitoring is the periodic collection of data to determine if activities are accomplishing the project goals and objectives. Monitoring enhancements can help aid in the evaluation process (Margoluis and Salafsky 1998). Problems and corrective actions identified during monitoring can help direct future enhancements and/or monitoring protocols. However, determining the success of an enhancement can be a complex question since the habitat manipulation (enhancement) can cause varied effects and effects may not be linked to the manipulation (Fletcher et al. 2007). Fifty eight enhancement projects, which were implemented on 11 different properties as a result of HCS recommendations, were monitored in 2014. The following will be a summary of the findings for this year.

5.3.1 Restoration Projects

Conversion of cropland back to native grasses can benefit a suite of species. Monitoring of enhancement projects that involve native grass restoration is completed every year. For detailed objectives and desired measures of success for MULTISAR restoration projects see Downey et al. (2011; Section 5.3.1). Monitoring at five MULTISAR restoration sites were conducted in 2014. MP_7 has two reseeding projects (RP); RP_01, implemented in 2008 and RP_02 implemented in 2011. MP_18 has two different reseeded projects RP_01 (fall 2011) and RP_02 (spring 2012).

The grass species seeded in 2008 for MP_7 RP_01 were all present on the property in 2014 (Table 12). The reseeded area was grazed in 2013 and 2014, which is reflected in the change in litter quantities. This site continues to increase in vegetative cover and bare soil areas are diminishing. MP_7 RP_02 has seen an increase in litter amounts and vegetative cover (Table 13). Additional growing seasons and monitoring are still needed to determine any trends for this site.

MP_18 has also seen an increase in vegetative cover and an overall increase in desired grass species (Table 14) at both enhancement sites. More years of growth are needed to gauge the trends for these two areas.

Table 12. Range information collected for restoration project MP_7_RP_01.

Total of 4 transects/range health assessments	2008	2010	2011	2012	2013	2014
Range Health % Average	N/A	69.0	70.5	65.9	63.8	69.0
Litter Average (lbs)	N/A	203	483	626	388	544
Needle and Thread Grass (*Stipa comata*) % Average	<1	3.33	1.95	1.20	1.60	1.00
June Grass (*Koelaria macrantha*) % Average	0.5	10.90	4.93	6.67	4.53	4.53
Blue Grama Grass (*Bouteloua gracilis*) % Average	4	13.53	3.60	6.93	6.50	3.55
Northern Wheatgrass (*Agropyron dasystachium*) % Average	N/A	12.97	8.60	N/A	9.30	4.93

Total of 4 transects/range health assessments	2008	2010	2011	2012	2013	2014
Western Wheatgrass (*Agropyron smithii*) % Average	N/A	6.73	5.95	N/A	2.45	2.18
Silver Sagebrush *(Artemisia cana)* % Average	0.00	0.00	<1	<1	<1	<1
Average Wheatgrasses species*	9.6	N/A	N/A	14.7	N/A	N/A

N/A: not recorded; No assessments completed in 2009; *combined when they were not discerned to individual species

Table 13. Range information collected for restoration project MP_7_RP_02.

Total of 2 transects/range health assessments	2012	2013	2014
Range Health % Average	45	40	42
Total Vegetative Cover % Average	59.2	74.1	77.2
Litter Average (lbs)	172	175	255
Needle and Thread Grass% Average	0.1	0.15	0.1
June Grass % Average	4.5	4.95	4.55
Blue Grama Grass % Average	3.8	2.6	2.3
Northern Wheatgrass % Average	N/A	8.9	4.55
Western Wheatgrass % Average	N/A	3.7	3.3
Silver Sagebrush % Average	<1	1.5	<1
Average Wheatgrasses species %*	5.5	N/A	N/A

N/A: not recorded; *combined when they were not discerned to individual species

Table 14. Range information collected for restoration project MP_18_RP_01 and RP_02.

Total of 3 transects/range health assessments in each RP	RP_01 2012	RP_01 2013	RP_01 2014	RP_02 2012	RP_02 2013	RP_02 2014
Range Health % Average	40	36	37	42	37	43
Litter Average (lbs)	483	467	433	371	225	308
Total Vegetative Cover % Average	60	86	93	69	80	87

Total of 3 transects/range health assessments in each RP	RP_01 2012	RP_01 2013	RP_01 2014	RP_02 2012	RP_02 2013	RP_02 2014
Needle and Thread Grass% Average	0.17	0.23	0.23	0.4	0.5	0.9
June Grass % Average	0.1	2.2	4.5	1.2	3.9	5.6
Blue Grama Grass % Average	0.6	1.9	2.3	1.3	4.1	3.3
Northern Wheatgrass% Average	N/A	2.6	4	N/A	4.2	5.4
Western Wheatgrass% Average	N/A	1.3	1.4	N/A	5	4.3
Silver Sagebrush% Average	0	0	0	0	0	0
Average Wheatgrasses species%*	2.1	N/A	N/A	2.5	N/A	N/A

*combined when they were not discerned to individual species

The wildlife component of the reseeding projects was determined by completing wildlife point counts at historic point count locations (control and reference sites were also monitored but not discussed here). The following tables look at the trends for 5 different grassland bird species: Baird's sparrow (*Ammodramus bairdii*), grasshopper sparrow (*Ammodramus savannarum*), Sprague's pipit (*Anthus spragueii*), chestnut-collared longspur, and McCown's longspur (*Rhynchophanes mccownii*). The tables look at total numbers of each species per reseed treatment location comparing baseline data (year of treatment or year prior to treatment) with data collected in 2014, and only compares point count data, omitting any incidental sightings (Tables 15-16).

MP_7 RP_01 has seen a shift in bird species since 2012-2013. Further monitoring will be conducted every year now that grazing of the site has been incorporated. RP_02 has not had enough growing seasons to determine a trend yet.

In both treatment sites for MP_18 we see a large jump in grasshopper sparrows and a decline in chestnut-collared longspurs. Additional years of monitoring are recommended at these sites to define trends.

Table 15. MP_7_RP_01 and RP_02 grassland bird trend.

MP_7 Species	RP_01 2009	RP_01 2010	RP_01 2011	RP_01 2012	RP_01 2013	RP_01 2014	RP_02 2012	RP_02 2013	RP_02 2014
Sprague's Pipit	0	3	1	6	6	3	0	0	0
Grasshopper Sparrow	0	11	1	3	4	1	0	0	2
Baird's Sparrow	1	5	2	4	2	2	0	3	0
Chestnut-collared Longspur	0	4	0	0	1	0	1	0	1
McCown's Longspur	0	0	0	0	1	0	0	0	0

Table 16. MP_18_RP_01 and RP_02 grassland bird trend.

MP_18 Species	RP_01 2011 (pre-treatment)	RP_01 2012	RP_01 2013	RP_01 2014	RP_02 2011 (pre-treatment)	RP_02 2012	RP_02 2013	RP_02 2014
Sprague's Pipit	0	0	0	0	0	0	0	0
Grasshopper Sparrow	0	0	3	17	0	0	3	13
Baird's Sparrow	0	0	1	0	0	0	1	2
Chestnut-collared Longspur	2	2	3	0	0	0	3	0
McCown's Longspur	6	5	0	0	2	3	0	0

5.3.2 Shrub Planting and Shelterbelt

Shelterbelts and shrub planting at appropriate locations can increase nesting habitat for a variety of wildlife species such as ferruginous hawks (*Buteo regalis*) and loggerhead shrikes (*Lanius ludovicianus)*, and increase forage/winter habitat for greater sage-grouse (*Centrocercus urophasianus*), sharp-tailed grouse (*Tympanuchus phasianellus*) and pronghorn (*Antilocapra americana*). Shrubs will be monitored yearly for the first five years (unless not successful), to determine establishment and growth. See Downey et al. (2011; Section 5.3.2) for more detailed objectives and desired measures of success for shelterbelt and shrub planting.

Five previously planted sites were monitored either visually or by incorporating line intercept transects to record shrub and forb presence (Table 17). It may take multiple years for shrubs to establish substantially as shrubs must compete with other vegetative species, adjust to local moisture levels, and are at risk of being browsed considerably by wildlife.

In 2014, MULTISAR planted silver sagebrush plugs at MP_13 and American vetch (*Vicia americana ssp*), golden bean (*Thermopsis rhombifolia*) and silver sagebrush at MP_18. Two hundred plugs of one species were planted in 15x15 foot marked plots. This new methodology will make monitoring easier in the spring/summer of 2015. Since survival has been determined low for the last several monitoring years, 2014 may mark the last year of planting. Continuing

portions of this enhancement type will be based on results found during monitoring of those sites planted in 2014.

Table 17. Shrub monitoring in 2014.

Property	Year planted	Species	Number of transects	Percent Cover of transect
MP_7_SSP_02	2012	Silver Sagebrush plugs	1	0% however several shrubs in vicinity
MP_7_SSP_03	2012	Silver Sagebrush seeds	2	0% however several shrubs in vicinity
MP_18_SSP_03	2012	Silver Sagebrush seeds	2	0%
MP_18_SSP_04	2013	Vetch plugs	2	0%
MP_18_SSP_05	2013	Silver Sagebrush plugs	2	2.5%

5.3.3 Artificial Nesting/Roosting Structures

Artificial structures are used by MULTISAR in areas which have potential to support a species at risk without negatively impacting other species in the area. Artificial structures include raptor nest poles, bat boxes, and burrowing owl (*Athene cunicularia*) burrows. Refer to Section 5.3.3 of Downey et al. (2011) for objectives and desired measures of success for all of MULTISAR's artificial structures.

Artificial nesting structures monitored in 2014 included 11 nest poles installed for ferruginous hawks. The nest poles are monitored for raptor use and Richardson's ground squirrels are surveyed as an indicator of prey availability in the area. Other artificial structures monitored included 2 burrowing owl nests and 2 bat boxes (Table 18).

Table 18. Artificial nesting structure monitored in 2014.

Participant	Enhancement	Year Implemented	Desired Species	Desired Effect/Trend Occurring	2013 Richardson's Ground Squirrels (adults only)	2014 Richardson's Ground Squirrels (adults only)
MP_8 (AS_01-03)	3 Nest Poles	2012	Ferruginous Hawk	Yes: All nests active with Ferruginous hawks	Within 3.4km^2 288 ground squirrels were counted	Within 3.6km^2 **258** ground squirrels were counted
MP_26 (AS_01-02)	2 Nest Poles	2013	Ferruginous Hawk	1 of 2 nests in use by Ferruginous hawk	Within 3.4km^2 71 ground squirrels were counted	Within 3.8km^2 **84** ground squirrels were counted
MP_5	2 Nest Poles	2007	Ferruginous Hawk	Yes: both nests in use by Ferruginous hawk	No transect for this property	No transect for this property
MP_6	3 Nest Poles	2013	Ferruginous Hawk	No: Nest structures have seen raptor perching use but no nesting yet	N/A	Within 3.0km^2 **138** ground squirrels were counted

Participant	Enhancement	Year Implemented	Desired Species	Desired Effect/Trend Occurring	2013 Richardson's Ground Squirrels (adults only)	2014 Richardson's Ground Squirrels (adults only)
MP_25	1 Nest Pole	2013	Ferruginous Hawk	Yes: nest active with dark phase Ferruginous hawk	N/A	Within 4.0km^2 **32** ground squirrels were counted
MP_2	Artificial Burrow	2008	Burrowing Owl	No: Not in use yet	N/A	N/A
MP_9	Roosting/ maternity bat box	2012	Various bat species	No: Not in use yet	N/A	N/A

5.3.4 Weed Control

Sites invaded by noxious and restricted weed species reduce range health, as the invading species quickly replaces the native vegetation, reducing diversity and productivity. Refer to Section 5.3.5 of Downey *et al.* (2011) for objectives, desired measures of success and monitoring time frames for weed control enhancement sites. Two properties that implemented bio-control (insects) for leafy spurge and Dalmatian toadflax were monitored for weed control (Table 19).

Table 19. Weed control monitoring in 2014.

Property	Implementation Year	Species of Weed	Control Method	If Bio-Control used, are larvae present?	Desired Effect/Trend Occurring
MP_8_WC_01	June 2011	Leafy Spurge (*Euphorbia esula*)	Bio-control/Spray	Larvae not found but adult control agents present	Yes die off of spurge evident with few old stems from previous year's growth
MP_9_WC_01	June 2009	Dalmatian Toadflax (*Linaria dalmatica*)	Bio-control/Spray	No larvae or adult agents found during inspection	Yes Dalmatian toadflax die off is present, radiating outward from control agent release site. As we moved further than 100m from release site, the density of weeds drastically increased in number and in health.

5.3.5 Watering Systems

Water improvement monitoring will occur at two levels depending on the scale of impact.

A) Portable Watering Units

Portable Watering Units are usually purchased through MULTISAR to help reduce impacts to wetlands/riparian areas and to better distribute cattle throughout the pasture. Portable watering units can attract cattle away from wetlands/riparian areas thereby improving wildlife

habitat by increasing emergent vegetation, reducing erosion of the slopes and shoreline by cattle, and increasing the longevity of wetlands/riparian areas. Portable watering units are used with several MULTISAR participants: MP_1, MP_4, MP_5, and MP_8. These units, since they were built to be portable, have been used at various locations on these properties. Upon investigating their last known locations, many of the dugout locations have seen increased bank vegetation, improved bank stability with the increased presence of shrubs, and less water turbidity. Emergent vegetation observations, photos, and wildlife observations were recorded at all portable watering units in use on all four MULTISAR participant properties in 2014.

B) Watering Sites (Uplands)

Upland watering sites can be utilized to attract cattle into an area which is seldom used, in order to create heavier grazing pressure to benefit targeted wildlife species. Upland watering sites can also help decrease impacts on other wetlands and riparian areas in the same pasture (Figure 3).

Refer to Section 5.3.6 of Downey et al. (2011) for objectives, desired measures of success, and monitoring time frames for upland watering sites. In 2014, wildlife and range surveys were conducted at all upland watering sites. The results are summarized in Table 20.

Figure 3. Upland Watering site keeping cattle out of a sensitive area.

Table 20. Upland watering site enhancement monitoring 2014.

Enhancement Site	Date Implemented	Baseline Wildlife Point Count within 100m	2014 Point Count within 100m	Range health trend within 50m of watering site(s)	Range health trend 200m from the watering site(s)	Desired Effect/Trend Occurring
MP_1 1 site	2010	Brewer's Blackbird Horned Lark Richardson's Ground Squirrel Sprague's Pipit Vesper Sparrow	Chestnut-collared Longspur Horned Lark Richardson's Ground Squirrel Sprague's Pipit Vesper Sparrow	Range health in 2012: 72% Range health in 2014: 62% High use of well from cattle	Stable	Yes Range health improves as you get further away from the water well
MP_5 3 sites	2008	Horned Lark Richardson's Ground Squirrel Savannah Sparrow Western Meadowlark	Blue-winged Teal California Gull Horned Lark Killdeer Lesser Scaup Northern Shoveler Richardson's Ground Squirrel Savannah Sparrow Sharp-tailed Grouse Vesper Sparrow Western Meadowlark	Range health in 2010 (due to a fire in 2012): 77% Range health in 2014: 80%	Downward-Stable (due to fire in 2012)	Unknown due to fire changing a large portion of the area
MP_8 1 site	2010	Brewer's Blackbird Savannah Sparrow Vesper Sparrow Western Meadowlark	Chestnut-collared Longspur Cliff Swallow Horned Lark Richardson's Ground Squirrel Savannah Sparrow	Range health in 2012: 69% Range health in 2014: 52% High use of well from cattle	Stable	Yes Cattle using watering site, improving range health further away.
MP_9 2 sites	2010	Richardson's Ground Squirrel Savannah Sparrow Vesper Sparrow	Baird's Sparrow Cliff Swallow Horned Lark Richardson's Ground Squirrel Savannah Sparrow Vesper Sparrow	Range health in 2012: 100% Range health in 2014: 84%	Stable	Yes

5.3.6 Tree and Shrub Protection

Trees and shrubs which have been or have the potential to be heavily impacted by cattle are generally recommended to have fence lines or corral panels placed around them to help prevent their gradual destruction and subsequent loss. Trees, especially lone cottonwood trees, in pastures that can be used as nesting sites by ferruginous hawks should also be protected. Sites in which the

landholder implements this enhancement will be monitored every two years with photos taken to document the reduced impact of cattle on trees or shrubs. Where applicable, line intercept transects were completed for shrub enhancement sites. Wildlife observed using the sites was also documented. Monitoring occurred at five locations in 2014 with improved foliage and bark retention of trees and shrubs noted at all locations (see Figures 4 and 5 for examples).

Figure 4. Results of two years of tree protection at one MULTISAR participant site.

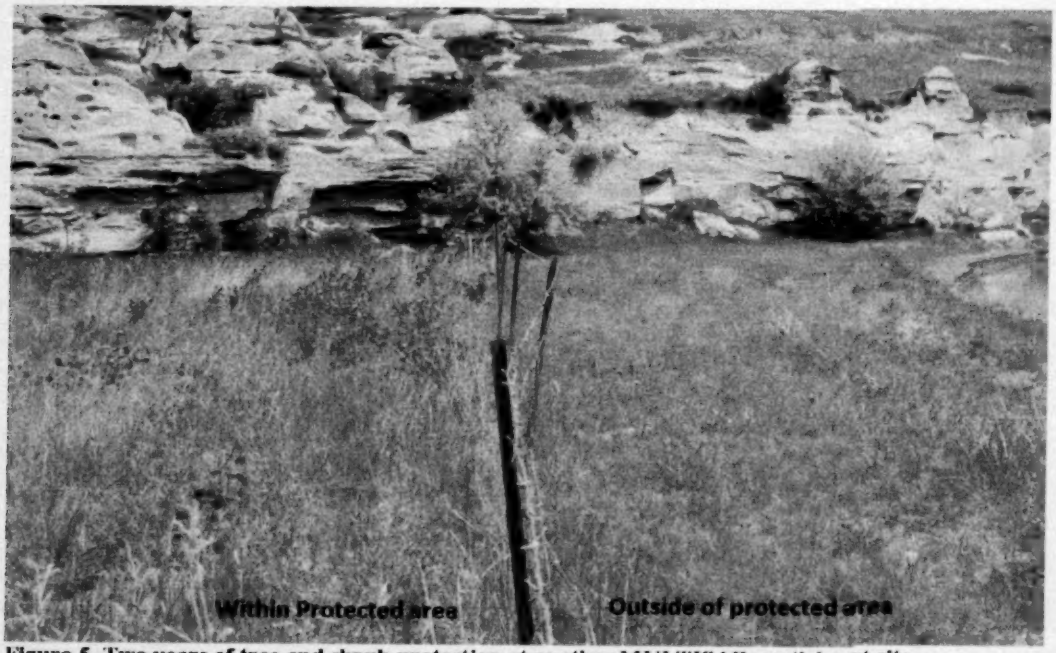

Figure 5. Two years of tree and shrub protection at another MULTISAR participant site.

5.3.7 Anthropogenic Feature Mitigation

In southern Alberta, anthropogenic features such as old buildings can be an attractant for certain species including the great horned owl (*Bubo virginianus*), which may prey on the Endangered Greater Sage- grouse. In certain areas, MULTISAR assists with the removal of these features on the landscape. In 2014, one site was monitored for this mitigation and photo records were taken (Figure 6).

Figure 6. Building removal from a MULTISAR participant site.

5.4 Future Direction

In 2015 MULTISAR will continue to monitor a sub-sample of enhancement projects to determine if desired effects are occurring. Before-After-Control-Impact design (BACI) will continue to be utilized to build habitat representations before and after treatments as well as look at control and reference sites. The BACI design is favored over simpler before and after comparisons to aid with linking effects with treatments (Schwarz 2010). In 2015, 29-31 enhancement sites will be monitored (Table 21).

Table 21. Monitoring of enhancement projects in 2015.

Enhancement Type and associated items to monitor	Number
Artificial Structures: • Nest poles (7 @ 3 properties) • Richardson's ground squirrel transects (3) • Bat boxes (2)	**12 sites**
Restoration Projects: • Range health transects • Wildlife point counts	**6 properties**
Shrub/Forb and Shelterbelt planting: • Survivorship within 15x15 plots	**2 properties**
Portable Watering Sites: • Wildlife point count • Emergent vegetation recorded • Photos	**4 properties**
Upland Watering Sites: • Wildlife point counts • Range health transects	**4-6 sites (4 properties)**

Enhancement Type and associated items to monitor	Number
• Photos taken	
Tree and Shrub protection: • Wildlife point count • Vegetation regrowth recorded • Photos taken	**1 site**

6.0 FUTURE DIRECTION

In 2014-2015, MULTISAR has developed a new business plan outlining its goals and objectives for the next five years (2015-2020). In 2015-2016, and based on anticipated full and timely funding, MULTISAR will continue its work in its three core program areas as follows:

1. Habitat Conservation Program:

   1.1. Continue to seek interested landholders, build and maintain relationship and develop or re-evaluate 3-5 Habitat Conservation Strategies (HCSs) in the priority area. HCSs include detailed vegetation and wildlife inventories, as well as range and riparian health assessments to identify habitats, priority species and the ecological condition of the rangeland and riparian areas. Re-evaluations of HCSs are subsets of these inventories and health assessments.

   1.2. For those species at risk detected during inventories, use MULTISAR as the tool to implement recovery actions identified in provincial and national recovery plans.

   1.3. Secure habitat for species at risk through signed stewardship commitment agreements.

   1.4. Assist landholders, based on priority, that have had a Habitat Conservation Strategy completed, in implementing habitat enhancement recommendations outlined in their HCS.

2. Education, Outreach and Awareness Program:

   2.1. When opportunities with ranchers, watershed, and other conservation groups present themselves, promote the MULTISAR message and distribute relevant information to its target audiences.

   2.2. Deliver 2-5 presentations to interest groups according to demand.

   2.3. Write media articles or give interviews on 2-5 occasions.

   2.4. Produce a 3-5 min video featuring the work and mandate of MULTISAR.

   2.5. Assemble information and images, write and distribute 1 issue of the Grassland Gazette; MULTISAR's newsletter.

   2.6. Develop a new general fact sheet about MULTISAR and update and reprint MULTISAR brochures or fact sheets on species at risk and beneficial management practices, as needed.

   2.7. Continue membership and maintain active participation in the Canadian Roundtable for Sustainable Beef.

   2.8. Respond to 3-10 opportunities annually to develop Species at Risk Conservation Plans (SARC Plans) or species-specific or guild-specific Beneficial Management Practices

Plans (BMP plans) in the Grassland Natural Region outside of priority areas for Habitat Conservation Strategies.

2.9. Regularly update MULTISAR's website, Facebook and Twitter accounts and ensure relevancy and accuracy of posted information.

3. Research, Monitoring and Data Management Program:

3.1. Participate in the 5 year monitoring program of ferruginous hawks throughout their range in collaboration with ESRD.

3.2. Assist ESRD in conducting sharp-tailed grouse monitoring on leks in southeastern Alberta.

3.3. Monitor amphibians on up to 10 road transects (RANA Routes), if temperatures and precipitation allow for the great plains toad and the plains spadefoot to emerge and reproduce.

3.4. Assess the relationship between wildlife species occurrences, wildlife species diversity, relative abundance, plant community type and metrics or range health.

3.5. Monitor habitat enhancement projects at 29-31 enhancement sites developed in the Milk River, St. Mary River and Pakowki Lake basins since 2005.

3.6. Ensure secure storage of paper forms at duplicate locations and timely entry of electronic range and wildlife data into appropriate provincial databases.

3.7. Maintain membership and continue active participation on the Canadian Roundtable for Sustainable Beef.

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APPENDIX A: PRELIMINARY & FOLLOW-UP SARC PLAN QUESTIONNAIRES

Species at Risk Conservation Plan Landholder Questionnaire

Ranch:
Landholders:
Location of homestead (inc. UTMs):
Year:
Observers:

In office prep work (please attached all prelim work to forms):

- ☐ HSI/MCV check
- ☐ FWMIS search
- ☐ Range Benchmark site
- ☐ GIS map
- ☐ Airphoto
- ☐ Communication with range agrologist *Contact before assessment if any leased land*
- ☐ Review of SAR recovery plans
- ☐ Other _____

Suggested report date and meeting:

Contact Information:

Phone Number:
Would you like our newsletter twice a year? If yes, electronic or hardcopy?
Electronic - Email Address:
Hardcopy - Mailing Address:

Section 1: History, Land Base and Usage

1. How long have you owned/operated this ranch? (If inherited how long has family owned ranch)?

2. What is the total land base (*i.e.*, acres) of your operation?
   a) # Deeded:
   b) # Leased:

3. What acres do the following contribute to the land base of your operation?
   i. Native prairie
   ii. Seeded pasture
   iii. Hayland (and dates of harvest)
   iv. Cropland

4. Can you explain the details of how you graze?
   (e.g. continuous vs. rotational, approx. time/season of use, how you decide to move cows, etc.)

5. Have you ever had a range or riparian health assessment completed on any of your land? If so, by whom? Yes – private land Yes – public land No

6. Do you currently have any wildlife issues on your land?

7. Are there any short or long-term projects you plan on completing on your ranch (e.g. add watering sites, fencing, etc.).

Section 2: Wildlife and Species at Risk

1. Do you feel that it is possible to run a profitable operation while providing suitable habitat for wildlife? Y N unsure

2. Do you feel that wildlife is beneficial to your operation? Y N unsure
   Please explain your opinions.

3. Do you feel that programs like MULTISAR may be useful in assisting you with maintaining suitable habitat for wildlife? Y N unsure

4. a) Do you feel that your land is important for providing habitat for species at risk and/or other wildlife? Y N unsure

   b) Do you know of any species at risk on your land? Y N unsure
   If so, which ones?

5. Do you feel that species at risk should be protected by law? Y N unsure

6. Have you heard of federal and provincial legislation such as the Species At Risk Act (SARA) and the Alberta Wildlife Act? Y N

7. Do you feel this legislation has an impact on your operation? Y N unsure
   If so, is the impact positive or negative?

8. Do you currently make adjustments for wildlife in your operation?
   If yes, please give examples. Y N

9. a) Would you consider making changes (or additional changes) to your operation in order to enhance habitat for wildlife? Y N maybe

   b) If no, are there any particular reasons?

10. What does (or would) motivate you to consider making changes to your operation in order to enhance habitat for wildlife?

11. Do you practice any of the following:

Keeping your native prairie (not plow)	Y	N	n/a
Rotational grazing	Y	N	n/a
Resting pastures	Y	N	n/a
Delaying haying until after wildlife has nested (after July 15th)	Y	N	n/a
Using flushing bars	Y	N	n/a
Seeding fall seeded crops	Y	N	n/a
Using zero or minimal tillage	Y	N	n/a
Maintaining shelterbelts and natural trees	Y	N	n/a
Limiting chemical use around water bodies	Y	N	n/a
Leaving vegetative buffer around wetlands when haying/cultivating	Y	N	n/a
Not draining wetlands	Y	N	n/a
Limiting grazing around wetlands	Y	N	n/a
Removing invasive alien weeds	Y	N	n/a
Minimizing environmental disturbance from industry	Y	N	n/a

12. Are you willing to share wildlife sightings on your ranch with MULTISAR?
    Y N

Section 3. Future Plans and Direction

1. Do you currently have a long-term plan for your ranch (e.g. plan to sell, expand operations, etc.)?

2. Can we contact you annually to follow up on the report? Y N

Section 4: Ranch Tour and Map

On the map provided please draw pastures, pasture names, fence lines, stock watering sites, and corral placement, areas of historical importance, etc.

How did you learn about MULTISAR? How about SARC Plans?

Species at Risk Conservation Plan Follow Up Survey

*** Before calling, read the report and have it open when you call.**

Section 1: The SARC Plan

1. Hello! This is _____ from MULTISAR calling, how are you? I'm doing a follow-up on the Species at Risk Conservation Plan that we developed together last <*enter month + year it was produced*> .

2. At the time of the assessment, you had:

	Original	**Current**
Native prairie	_____acres	_____acres
Seeded pasture	_____acres	_____acres
Hayland	_____acres	_____acres
Cropland	_____acres	_____acres

Is this information still correct? (if changed, adjust in *Current* column)

You also had:

	Original	**Current**
Deeded	_____acres	_____acres
Lease	_____acres	_____acres

Is this information still correct? (if changed, adjust in *Current* column)

3. Have you made any changes to management on the ranch since our last meeting? If so, what changes have been made?

4. If habitat improvements (Greencover or others) were made:

"We did this <*improvement*> with you. How is that working out for you?"
(address issue specific to the improvement. Eg For an offsite watering system, any changes to the wetland or changes to cattle from this new water source)

4. *If no habitat improvements, continue here:*

We identified _____, _____, and _____, as focal species on your property. Have you noticed use by any of these species (or species groups) on your land? *(Offer brochure etc if they show interest.)*

7. Is the MULTISAR sign that we provided you still in good condition, or do you need another one?

Section 2: "This section helps us guide our SARC Plan program and makes us understand your circumstances."

1. Do you feel that it is possible to run your operation while keeping the needs of wildlife in mind?
Y N unsure

4. How would you categorize wildlife in regards to your ranching (farming) operations (circle one).
   a. Important to my operation
   b. No impact to my operation, but I love having them and seeing them on the landscape.
   c. Negatively affect my operation
   d. I don't think about it.

5. How would you categorize the benefits of programs like MULTISAR. (circle one)
   a. Provide me with general wildlife knowledge for my property.
   b. Provide me with knowledge to make management changes beneficial to my operation.
   c. Both of the above
   d. None of the above

6. Has the MULTISAR program changed your perceptions of wildlife and/or species at risk? Explain.

5. a) Do you feel that your land is important for providing habitat for species at risk and/or other wildlife? Y N unsure

b) Do you know of any species at risk on your land? Y N unsure
If so, which ones? *(May not need to ask if already mentioned in discussion)*

Section 3: Wrap Up

1. Are there any projects that you would like to complete? *(off stream watering units, fencing water bodies, re-seeding permanent cover, bioengineering, etc)*

2. Do you have any suggestions or comments for us to improve our Species At Risk Conservation Plans?

3. Is a SARC Plan something that you could see yourself recommending to your neighbours or friends?
☐yes ☐ no

4. Is there anything else we can do for you? (Provide you with information about wildlife or wildlife issues, technical assistance, etc.)

(Tell them about any special events / projects relevant to them). Please keep in touch and feel free to contact us at any time.

That is all, thank you very much for your time. Have a nice day!

APPENDIX B: LIST OF ACRONYMS

ACA	Alberta Conservation Association
AFGA	Alberta Fish and Game Association
ESCC	Endangered Species Conservation Committee
ESRD	Alberta Environment and Sustainable Resource Development
ATPR	Alberta Tourism, Parks and Recreation
BACI	Before After Control Impact
BMP	Beneficial Management Practice
FWMIS	Fish and Wildlife Management Information System
GNR	Grassland Natural Region
GVI	Grassland Vegetation Inventory
HCS	Habitat Conservation Strategy
MLA	Member of the Legislative Assembly
MULTISAR	Multiple Species At Risk
PCF	Prairie Conservation Forum
RH	Range Health
SAR	Species at Risk
SARC	Species at Risk Conservation
SARC Plan	Species at Risk Conservation Plan

For a list of additional reports in the Alberta Fish and Wildlife Species at Risk Report Series, please go to the website:

http://esrd.alberta.ca/fish-wildlife/species-at-risk/species-at-risk-publications-web-resources/default.aspx